We claim:

1. A microfluidic system comprising a support apparatus with a microfluidic device in the cavity wherein the support apparatus comprises:

(a) a platform that comprises:

(i) a cavity shaped and sized to receive and support a microfluidic device;

(ii) a glass window positioned above the cavity so that when cells are being processed by a device in the cavity, the cells may be imaged through the glass window;

(iii) an interface plate that comprises a plurality of openings configured to seal to control channels in a microfluidic device in the cavity and to operate valves in the device by pneumatic pressure;

(iv) an integral heating member that surrounds the cavity in the plane of the platform, configured to maintain a microfluidic device in the cavity at a temperature suitable for cell culture;

(b) a mix box that comprises:

(i) an inlet configured to receive a gas mixture;

(ii) a humidifier configured to humidify the gas mixture;

(iii) a heater configured to heat the gas mixture to a temperature suitable for cell culture; and

(c) a conduit configured so that gas heated by the heater in the mix box may pass through the platform into a microfluidic device in the cavity,

further comprising a dedicated computer processor configured and programmed to control operation of the microfluidic device.